

Emissions Reductions from Abandoned Mines and Surface Mines:

A Project Developer's Perspective on the Opportunities and Hurdles to Generating Carbon Credits

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Blue Source

Agenda

- Overview of Blue Source
- Carbon offset project eligibility
- Investment criteria
- Economic model and project example
- Conclusion

About Blue Source

Since 2001, Blue Source built the largest portfolio of North American emission reduction credits and projects.

- 2 primary businesses

1. Carbon Credit Portfolio

- >200 million tonnes, >10 million tonnes sold
- 11 project types in 45 states, Canada
- Marketing Agreement with Goldman Sachs

2. Carbon Project Investment

- >\$500 million project equity with Och-Ziff Capital Partners
 - Developed, owned or operated all North American CO2 pipelines
- 7 offices: SLC, Houston, Calgary, SF, NYC, Denver, NC

Risks We Manage

- Will the project create the anticipated emission reductions?
- Can we register the project activity?
- Are the carbon credits marketable?
- Do these projects meet our investment return threshold?

Carbon Offset Projects

In order for a project activity to qualify for carbon credits (VERs), the project must be:

- **Real:** representing actual GHG emission reductions;
- **Measurable:** the amount of emission reductions can be quantified;
- **Verifiable:** a qualified, independent third-party confirms that the project activity actually reduced emissions as claimed; and
- **Additional:** the emissions reductions are not considered business as usual or the activity is not required by law.

Attributes of an attractive ER Project

- Project type;
- Project start date;
- Additionality;
- Monitoring protocol;
- Volume of emission reductions;
- Project life;
- Title;
- Location
- Additional benefits?

Emission Reduction Projects

Emission reduction projects must conform to a particular industry standard and complete:

- Project documentation
- Baseline and monitoring methodology
- Third party project validation/verification
- Registration of the emission reductions on a public registry
- Perform on-going monitoring and verification

Successful implementation of this process results in a Verified Emission Reduction (VER), Carbon Finance Instrument (CFI), or Voluntary Carbon Unit (VCU).

Current Eligible Projects for VCS and CCX

- Ventilation air methane [CCX & CDM]
- Abandoned mine methane [CCX]
- Pre-mining drainage wells, surface or underground (active), drilled after 1/1/1999 and mined around or through after 1/1/2007 [CCX]
- Pre-mining capture from underground boreholes [CDM]
- Surface drainage wells for coal bed methane [CDM]
- Surface goaf wells, underground boreholes, gas drainage galleries or other goaf gas capture techniques, including gas from sealed areas, to capture post mining CMM [CDM]
- Post-mining drainage wells, surface or underground (sealed mines), drilled at any time, collected after 1/1/2007, processed through a low-quality gas facility constructed after 1/1/1999 or utilized in a low-quality combustion process constructed after 1/1/1999 [CCX]

AMM and SM Project Eligibility

- Neither project type currently eligible under the Voluntary Carbon Standard because neither a CDM methodology exists nor has a new meth been approved.
- Blue Source is verifying a Surface Mine project and developing AMM projects for the VCS.
- CCX allows AMM projects; but trading at about \$1.25.
- EPA Climate Leaders is developing a CMM protocol.
- The American Carbon Registry launch in November
- Comment on market fluctuations

VCS Eligibility Note

- VCS currently accepts projects starting after 2002 and allows generation of credits after March 2006;
- The start date eligibility criteria will change on 19 November 2008;
- If projects starting before 19 November 2006 are not contracted for validation by 19 November 2008 then they will no longer be eligible under the VCS;
- Thereafter, projects must be validated within 2 years of their start date;
- Start date is defined as the date the project started reducing emissions (no longer date of financial closure).

Marketing AMM and SM Carbon Credits

- Project attributes that affect price: start date, project type, standard, additionality.
- Current relationships with buyers soliciting VCS-approved projects at \$5 to \$8 per ton.
- CMM projects are an eligible project type under proposed federal legislation.
- This makes them an attractive pre-compliance project and could garner them higher prices (\$5-8).
- Buyers include large investment banks, utilities and capped facilities, speculators.
- Blue Source's large, diverse portfolio and marketing agreement with Goldman Sachs allows us to agree to stricter terms, such as guaranteed deliver, then a single project developer thereby increasing price.

Investment Criteria

- Project attributes: gas rights, gas volumes, production rates, gas qualities, access to infrastructure, capex floors, return hurdles;
- Partner profiles;
- Project investment replicability;
- Carbon market risk mitigation – registration, performance, delivery;
- Economic uncertainty????

Economics of an AMM Project

- VERs is major driver for project development
- IRR without VERs is 9% and with VERs is 24%
- If price of gas was still over \$11 for first 3 years then the IRR jumps to 14% and 30% respectively.

Year	Gas Net (MMcf)	VER Volume	Gas Price (\$/Mcf)	VER Price Deck	Net Gas Rev	VER Rev	Gas Costs Net	VER Costs	Gas Capex	Gas IRR	Gas + VER IRR
2008	19	0	\$7.00	\$6.00	\$134,180	\$0	\$114,560	\$30,000	1,497,530	(\$1,477,910)	(\$1,507,910)
2009	93	8,162	\$8.50	\$7.00	794,453	57,132	\$238,270	30,000	2,297,020	(1,740,837)	(1,713,705)
2010	113	39,796	\$8.30	\$8.00	938,483	318,370	\$244,020	35,000	0	694,463	977,833
2011	102	48,144	\$8.20	\$10.00	838,662	481,439	\$230,500	35,000	0	608,162	1,054,601
2012	95	43,548	\$8.11	\$12.00	769,951	522,574	\$221,540	35,000	0	548,411	1,035,985
2013	88	40,424	\$8.11	\$12.00	716,064	485,084	\$210,590	35,000	0	505,474	955,558
2014	81	37,594	\$8.11	\$15.00	655,278	563,917	\$176,820	35,000	0	478,458	1,007,375
2015	71	34,403	\$8.11	\$15.00	579,849	516,046	\$141,980	30,000	0	437,869	923,915
2016	64	30,443	\$8.11	\$15.00	521,665	456,644	\$123,630	30,000	0	398,035	824,679
2017	55	27,388	\$8.11	\$15.00	449,269	410,823	\$112,390	30,000	0	336,879	717,702
2018	48	23,587	\$8.11	\$15.00	388,154	353,810	\$104,100	30,000	0	284,054	607,863
2019	41	20,379	\$8.11	\$15.00	330,524	305,680	\$90,610	30,000	0	239,914	515,594
2020	35	17,353	\$8.11	\$15.00	285,278	260,295	\$80,790	30,000	0	204,488	434,783
2021	29	14,978	\$8.11	\$15.00	233,952	224,663	\$60,030	30,000	0	173,922	368,585
2022	23	12,283	\$8.11	\$15.00	188,684	184,243	\$37,980	30,000	0	150,704	304,947

Conclusion

- CMM, AMM and SM projects are an attractive carbon offset project type;
- The offsets are highly marketable and garner some of the highest prices;
- Carbon revenue can be a significant economic driver for project development;
- The offset project development process is convoluted and time intensive – there are risks;
- The economic uncertainty is changing many of the project assumptions;
- Blue Source is actively pursuing project development
- Don't wait to develop your carbon credits!!!

Questions?

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